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U.S. Department of Transportation
Docket Management Systems, Docket Operations
West Building Ground Floor, Room W12-140,
1200 New Jersey Ave., SE
Washington, DC 20590

Subject: Addition of CONOPS to incorporate Matternet Mission Control into Remote Operations Center (ROC) for Exemption 18339C and 18338D to continue progress towards integration of UAS into the NAS that normalize safe, scalable, economically viable, and environmentally advantageous UAS operations. UPSFF requests the FAA grant permission to Amend 18339C and 18338D as required by the FAA analysis. Lastly, UPSFF requests a summary of the petition for exemption not be published because the relief requested is identical to exemptions previously granted.

Summary

The Federal Aviation Administration issued Exemption 18338D to UPS Flight Forward on 29 April 2022. In Addition, Federal Aviation Administration issued Exemption 18339C to UPS Flight Forward on 29 April 2022. See Docket No. FAA-2019-0628 for list of exemptions. UPS Flight Forward Inc. ("UPSFF"), requests addition of CONOPS for continued Part 135 operations necessary to incorporate Matternet Mission Control into Remote Operations Center utilizing Matternet, Inc. Change Request, CR-M2-SEP2021, Revision 1, dated September 29, 2021, submitted on October 1, 2021, for the UPS Flight Forward, Inc. 44807.

UPSFF plans to operate a Remote Operations Center (ROC) at 311 Clark Station Rd in Fisherville, KY. RPIC's will operate flights from the ROC. The addition of AED approved Mission Control into ROC operations along with updated training, enhanced systems and procedures provide a safer operation. UPSFF continues to exhibit safe operations as demonstrated by 33 continuous months of safe air carrier operations in the United States providing continued promotion and innovation of economic development of UAS.

UPSFF requests a summary of the petition for exemption not be published because the relief requested is identical to exemptions previously granted. Wing Aviation, LLC recent Exemption (FAA-2018-0835) contains granted relief identical to this submission. UPSFF requests the FAA process this request quickly to avoid unnecessary delays for future requests.

I. Introduction

Exemption 18338C was issued to permit UPSFF to conduct air carrier operations with the Matternet M2 aircraft while Matternet is engaged in the process of obtaining a type certificate for the M2. Matternet has demonstrated and completed the required flight hours in support of the durability and reliability criteria as allowed under §21.17(b) to achieve type certification. Matternet, has received Change Request, CR-M2-

SEP2021, Revision 1, dated September 29, 2021 for Mission Control as well as technological and software improvements.

Operations

UPSFF has a Part 135 delivery network operating the M2v9 in approved operating areas defined in the OpSpec B050 delivering packages. UPSFF's OpSpec A055 authorizes carriage of hazardous material. Routes within the operations area are developed by UPSFF in accordance with the FAA accepted UPSFF route assessment process. The M2v9 has successfully completed over 10,000 flights in the United States.

UPSFF plans to implement Matternet Mission Control System enabling remote operations. UPSFF will add a RPIC to a Remote Operations Center at 311 Clark Station Rd in Louisville, KY. Remote operations will initially be 1 RPIC to 1 UA and 1 RPIC to the required Visual Observers (VO) as defined in the visual observer plan.

UPSFF plans to operate one RPIC in Fisherville, KY to one UA. The RPIC will be paired with VO's according to the visual observer plan. VO#1 will be in located at the origin (ORIG) and VO#2 will be located at the destination (DEST). Any required additional VO's, will be located per the visual observer plan. RPIC's will have communication with technicians when required, while technicians are performing duties in the operations. All required communication will be in real time and from a reliable software communication application. The RPIC will ensure all required preflight inspections and checks are complete. The RPIC may delegate portions of responsibilities/duties to qualified crewmembers. Technicians in the operations may perform duties that they are trained and qualified to perform. VO's will be responsible for communicating any new air or ground hazard to the assigned RPIC.

One ROC RPIC Supervisor will be in Fisherville, KY, as described in the GOM and may supervise multiple RPIC's. The ROC RPIC Supervisor's duties and responsibilities are described in the CONOPS and GOM.

UA Specification

UPSFF will utilize the Matternet M2v9 quad copter under Exemption No 18338C as amended issued under Title 49 U.S.C. 44807. Matternet M2v9 has completed the required D&R hours for Type Certification and is in the process of obtaining a Type Certification. The Matternet M2V9 auto-flight system is responsible for flight control and navigation. These are self-testing systems that prohibit flight if inoperable. The sUA flies an approved, pre-determined route that is uploaded to the sUA network system along with a pre-determined geofence for the route of flight. The M2v9 contains a dual GPS system that provides redundancy should one system fail.

In addition to geo-fence safeguards, the M2v9 sUA has a Flight Termination System (FTS). If a malfunction occurs that puts the sUA outside of safe flight parameters, the FTS will automatically deploy the safety parachute. The M2v9 will automatically determine via their onboard fault management system when they can no longer maintain safe flight parameters. There is a dedicated battery for FTS, which ensures that the parachute ejection and flight telemetry can continue in case of primary power failure.

Meteorological Conditions

Operations are conducted within the most restrictive limitation documented in manuals, waivers or exemptions.

Pilot and Personnel Responsibilities

ROC RPIC Supervisor will be stationed in Fisherville, KY and may operate out of the ROC. The ROC RPIC Supervisor is qualified as documented in the GOM and will have successfully completed the FAA approved flight training program for RPIC. ROC RPIC Supervisors may supervise multiple RPIC's.

RPIC's will be the Pilot in Command of UA's assigned to them in Mission Control at the Remote Operations Center in Fisherville, KY. RPIC's are responsible for the safe operation of their assigned UA. RPIC's are responsible to ensure the preflight inspections have been completed. RPIC's are qualified as documented

in the GOM and will have successfully completed the FAA approved flight training program. Initial and recurrent training curricula have been modified for FAA approval, to include operations utilizing the mission control GCS/Remote operations and onsite handheld GCS operations. All RPIC's will be trained for both types of operations.

Visual Observers will be trained in accordance with FAA approved flight training program for Part 135 Operations. Visual Observers are responsible for communicating any new air or ground hazard in the operational area to the RPIC. Initial and recurrent training curricula have been modified for FAA approval to include ROC procedures, operator application and additional emphasis on hazard identification and reporting.

UAS Technicians must hold a valid FAA Repairman Certificate or FAA Mechanic Certificate with airframe and/or powerplant ratings and complete UPSFF formal classroom training in accordance with GMM. Technicians ensure the Airworthiness Release or appropriate Aircraft Log entries are executed in accordance with GMM procedures and perform repairs and maintenance on the aircraft if specifically trained and authorized to perform that maintenance function.

Mission Control System Description

The Remote Operations Center (ROC), located at UPSFF Headquarters in Fisherville KY will initially have multiple RPIC stations and a ROC Supervisor station within a sterile and secure operating area. There will be additional training stations located in the training facility.

Each station will have the Mission Control technology which is described in the Matternet UFM and UPSFF ROC CONOPS.

Network

The UPS Flight Forward Remote Operations Center (ROC) network was designed by UPS Global Network Services professionals to provide the redundancy, reliability, separation from UPS Systems, connectivity, and bandwidth to safely and successfully complete remote, BVLOS Flights from the ROC. See UPSFF ROC CONOPS for additional detail.

Loss of C2 Link procedures:

In case of loss of C2 link the aircraft will perform a pre-programmed maneuver. See supporting manuals for details. Crewmembers will follow QRH procedures for "*Vehicle Disconnected-In Flight."*

In case of Mission Control failure, Crewmembers will follow QRH procedures for "*Mission Control Failure*."

In case of Loss of Line Power (ROC)- In Flight, the RPIC will follow QRH procedures for "*Loss of Line Power (ROC)- In Flight*."

Crewmember Communication

UPSFF crewmember communications utilize cellular data/voice network for primary and secondary communications. Different network providers (examples: ATT/Verizon/T-Mobile) will be used for primary and secondary devices. Networks will be chosen based on the operational area coverage analysis. In addition, different hardware devices will be utilized for primary and secondary communications. UPSFF will utilize reliable software applications for communications. See CONOPS for details on the communication system.

I. Safety Case

Operations are subject to UPSFF Air Carrier approved and accepted manuals and the OpSpecs as well as any Conditions and Limitations in current Exemptions 18339 and 18338. UPSFF has submitted an SMS program voluntarily and will be one of the first UAS Part 135 Air Carriers to obtain a validated and accepted

program. The reliability of the Matternet system and UPS Flight Forward operational experience achieves a level of safety equivalent to the level of safety provided under the foregoing regulations.

UPSFF current operations have demonstrated the efficacy of standardized procedures and crew communications in long distance operations.

Aircraft Evaluation Division (AED) approved the Matternet, Inc. Change Request, CR-M2-SEP2021, Revision 1 on October 28, 2021, for the UPS Flight Forward, Inc. 44807 exemption for Mission Control Updates.

Several operational enhancements will lower risk for Remote Operations. The addition of a ROC Supervisor, as outlined in the GOM will provide oversight of operations and the technical assistance as needed to the RPIC. This will ensure consistency of operations and an additional level of safety and compliance. The enhanced crewmember communication system will be more reliable over long distances and provide real time communication. The push to talk feature will allow a better human interface for crewmembers. The network design adds to the level of safety and reliability for ROC operations by ensuring maximum uptime. Lastly, multiple QRH procedures for C2 link loss and other procedures have been developed to decrease any anticipated risks.

UPSFF has updated the FAA approved training program for RPIC's and VO's for Remote Operations. All crewmembers will be trained in Remote Operations as well as handheld GCS operations. The QRH's contain these procedures.

The combined operational enhancements and updated training program will ensure the addition of Remote Operations utilizing Matternet Mission control will not adversely affect safety.

Safety Risk Management

UPSFF safety risk analysis identified several hazards relating to the new system and operations. See UPSFF ROC CONOPS for details.

II. Amendments Requested

UPSFF requests analysis of required amendments to incorporate the updated UPSFF ROC CONOPS for Matternet Mission Control into a Remote Operations Center (ROC).

III. Grant of the Amendments are in the Public Interest

UAS delivery depends on safe, responsible, and scalable operations. UPSFF has demonstrated safe operations through 33 months of continuous Part 135 Air Carrier service, and extensive testing. UPSFF continues to demonstrate our commitment to responsible flying, including extensive community engagement. UPSFF values our partnership in the PSP and BEYOND programs sharing significant practical experience and data regarding small UAS air carrier operations. UPSFF is committed to assisting the FAA in understanding the risks and appropriate risk mitigation measures, which will further the FAA's policy decisions that could result in rulemaking decisions. UPSFF is committed to the testing and advancement of new technologies, alongside the FAA to advance the UAS industry.

Economic benefits include the creation of jobs in support of UPSFF operations and well as supporting local businesses by providing logistical services from established enterprises to consumers. Our same-day delivery reduces exposure for high-risk demographics and reduces transit time. UAS zero emissions operations are environmentally friendly, reducing the emissions profile of our air and ground operation. In addition, these aircraft reduce the noise of traditional aircraft and ground courier operations. Drone delivery has the potential to reduce accidents and miles driven as well as servicing various customers, including rural and hard to reach areas.

Therefore, granting this amendment is in the public interest as it will permit UPSFF to continue to support

the FAA's goals of fully integrating UAS into the National Airspace System, further developing certificated air carrier services that normalize safe, scalable, economically viable, and environmentally advantageous UAS operations.

IV. Grant of the Amendment Achieves an Equivalent Level of Safety

Operations are subject to UPSFF Air Carrier approved and accepted manuals and the OpSpecs as well as any Conditions and Limitations in current Exemptions 18339 and 18338. UPSFF has submitted an SMS program voluntarily and will be one of the first UAS Part 135 Air Carriers to seek a validated and accepted program. The reliability of the Matternet system and UPS Flight Forward operational experience achieves a level of safety equivalent to the level of safety provided under the foregoing regulations.

The combined operational enhancements and updated training program will ensure the addition of Remote Operations utilizing Matternet Mission control will not adversely affect safety.

V. Conclusion

The AED approved Mission Control system combined with the operational and training enhancements from UPSFF will provide an overall safe system that enables UPSFF to expand operations and will help to advance the Federal Aviation Administration's (FAA) goal of enabling operations that normalize safe, scalable, economically viable, and environmentally advantageous UAS operations. Further, the proposal will advance the objectives of the FAA's PSP program of enabling operations that are "repeatable, scalable and economically viable with a specific emphasis on… small package delivery."

UPSFF manuals, procedures, UPSFF ROC CONOPS and checklist are confidential and proprietary information of UPS Flight Forward Inc. (UPSFF) and will be submitted separately. These shall not be disclosed, in whole or in part, to any third party for any purpose without the prior written consent of UPSFF. This information is provided in confidence and all applicable exemptions to the Freedom of Information Act, 5 U.S.C. § 552 (FOIA) are invoked to withhold the confidential information from public disclosure.

We respectfully submit this request for amendment to our exemptions for your analysis.

Sincerely,

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